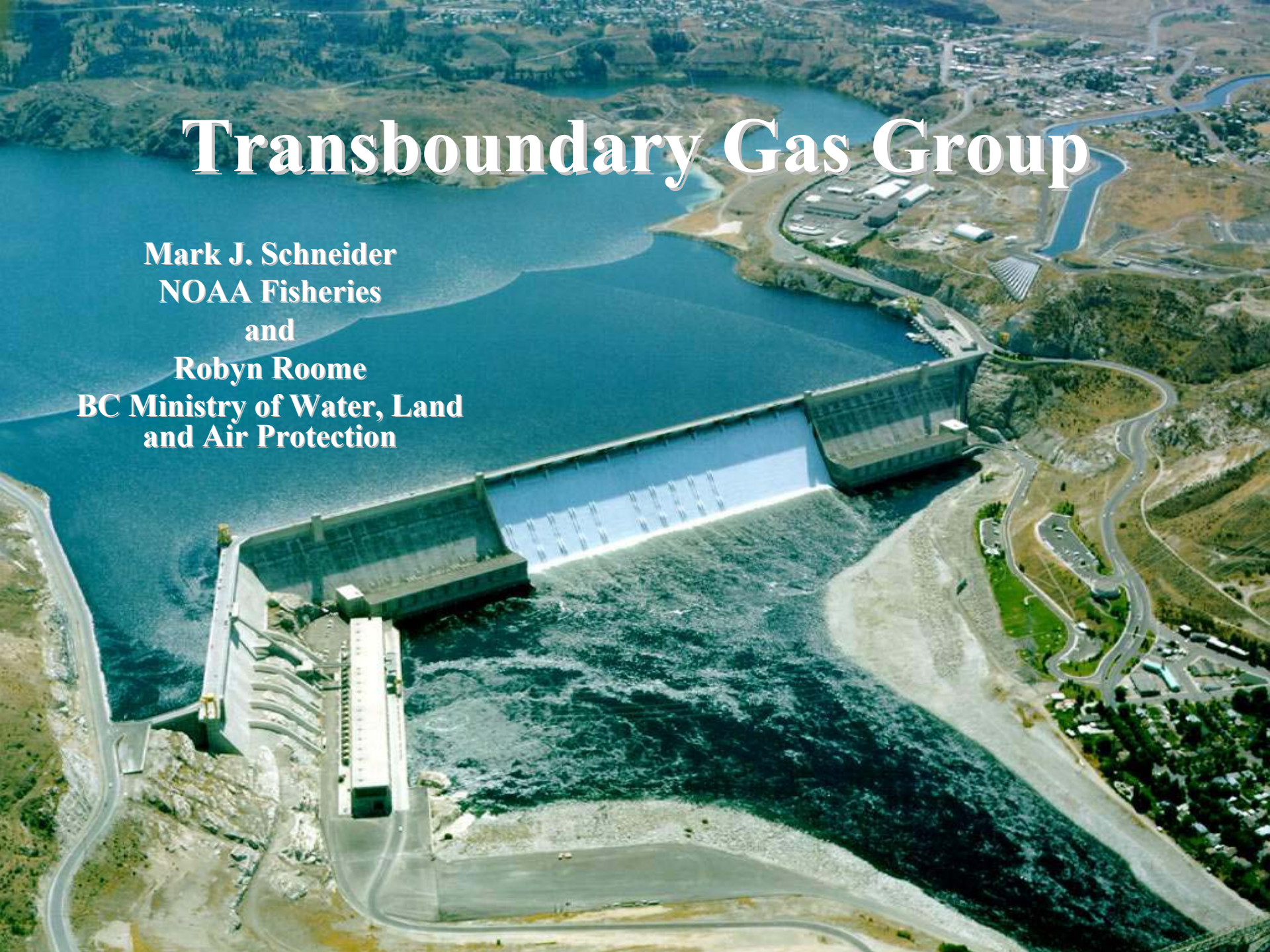


Transboundary Gas Group

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An aerial photograph showing a large concrete dam with a spillway, situated in a deep valley. A large reservoir of blue water is visible upstream of the dam. The surrounding landscape is rugged and mountainous, with some vegetation and a road visible in the foreground.

Transboundary Gas Group

Organized in 1998 to help coordinate ongoing investigations and dissolved gas management efforts in the transboundary region of the Columbia River Basin

Total Dissolved Gas

- High levels of total dissolved gas (TDG) are often produced below dams when spilled water plunges to depth
- Supersaturated levels of dissolved gas can cause gas bubble disease in aquatic biota

Gas Bubble Trauma
-courtesy Lake Roosevelt Forum



TGG Long-Term Goal

- Reduce systemwide TDG to levels safe for all aquatic life in the most cost-effective manner possible




Brilliant Expansion
-courtesy Columbia Power Corp.

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. The dam is a long, curved concrete structure with a spillway in the center. A road runs along the base of the dam, and there are some buildings and parking areas near the spillway.

TGG Early Organization

- Steering Committee
- Four technical workgroups
 - Biological Effects and Research
 - Monitoring and Information Sharing
 - Modeling (Computer Simulations)
 - Operational and Structural Gas Abatement

An aerial photograph of a large dam and reservoir, likely the Grand Coulee Dam, set against a backdrop of rugged mountains and a clear blue sky. The reservoir is a deep blue, and the dam structure is a light-colored concrete. The surrounding landscape is a mix of green vegetation and brown, rocky terrain.

TGG Framework Plan

Phase 1 Activities

- Monitoring Information
 - Develop monitoring plans for initial screening models
- Computer Modeling
 - Identify data and information needs for screening models
- Structural Characteristics
 - Identify structural alternatives for transboundary gas planning
- Framework Plan Integration
 - Evaluate existing treaty implications for dissolved gas management in the Columbia River Basin

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. The dam is a long, curved concrete structure with a spillway. A road runs along the base of the dam. The sky is clear and blue.

TGG Influence

- Enhanced TDG monitoring and modeling at transboundary hydro projects
- Project operational changes leading to reduced gas production
- Project structural changes leading to reduced gas production

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. The dam is a long, curved concrete structure with a spillway. A road runs along the edge of the reservoir. The sky is clear and blue.

TGG Accomplishments

- Framework Plan for Coordinating Activities of the Columbia River Transboundary Gas Group
- *Treaty Implications of Dissolved Gas Management in the Columbia River Basin*
 - by Robert M. Goldschmidt, June, 2001
- Endorsement of Columbia Power Corporation's expansion of generation capacity at Brilliant Dam. March 2000.

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. The dam itself is a long, curved concrete structure with a spillway. A road or railway line runs along the base of the dam. The sky is clear and blue.

Accomplishments (cont.)

- Endorsement of Teck Cominco Metals Ltd. increase in hydroelectric generation capacity at Waneta Dam. November, 2002.
- Letter to U.S. Army Corps of Engineers requesting investigation of system-wide TDG of Upper Columbia River Alternative Flood Control Operations (VarQ). October, 2003

An aerial photograph of a large dam and reservoir, likely the Grand Coulee Dam, situated in a mountainous region. The reservoir is a deep blue color, and the surrounding landscape is a mix of green and brown, indicating a mix of forest and cleared land. The dam itself is a long, straight structure with a spillway in the center.

Expand TGG Technical Scope?

Yes?

No?

- April, 2002, Spokane, WA,
“Towards Ecosystem-Based Management: Breaking Down the Barriers in the Columbia River Basin” conference
 - Joint meeting of TGG Co-Chair and the ECC
 - ECC request – Would TGG consider expanding technical scope to include “water quality” issues?

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. A road runs along the edge of the reservoir, and a small bridge or structure is visible near the dam. The sky is clear and blue.

Rationale for Scope Expansion from TDG to Water Quality

- Enhance dialogue and efforts on other transboundary water quality issues
 - Review of major projects and industrial activities in transboundary region
 - Water quality planning , e.g., Water Management Plans and TMDLs
 - Coordination of assessments, monitoring, sampling protocols, etc.
 - Impacts of land use practices in transboundary region

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by steep, forested mountains. The dam is a long, curved concrete structure with a spillway. A road runs along the edge of the reservoir, and there are some buildings and infrastructure near the dam.

Expanded TGG Scope = TGG Growth? Probably

- TGG Steering Committee would need to assume new responsibilities, strategies for response
- Increased selectivity in accepting assignments
- Assignments may require additional technical expertise
- ECC may need to provide direction, priorities, and logistical and resource support